MEASURETEK®
EAST HIGH

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PS-103

Operation Manual

Contents subject to change without notice

Version 1.0
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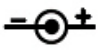
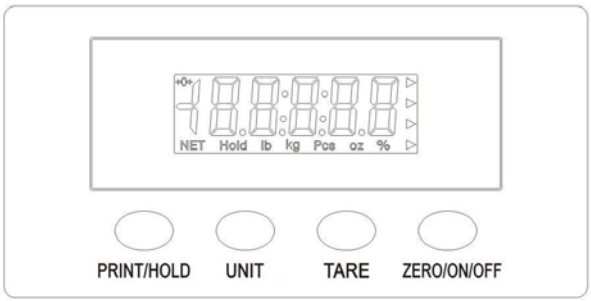
General Information

- Read and understand all operating instructions before using this product. Keep this manual for future reference.
- Record the weight shortly after loading the platform. After extended periods, the load cell's output signature may result in a less accurate reading.
- Place the scale on a hard, flat, and level surface before using.
- Avoid extended exposure to extreme heat or cold. Optimum operation is at normal room temperature. Allow the scale to acclimate to room temperature before using.
- Allow sufficient warm up time. Turn the scale on and allow up to 2 minutes for internal components to stabilize before weighing.
- Electronic scales are precision instruments. Do not operate near cell phones, radios, computers or other electronic devices that emit radio frequencies that may cause unstable readings. If the scale performs poorly, try moving to a different room or location.
- Avoid using in heavy vibration or heavy airflow conditions.

Specifications

Model	PS-103-35	PS-103-68	PS-103-75	PS-103-180	PS-103-200
Max Capacity	77lb (35kg)	150lb (68kg)	165lb (75kg)	397lb (180kg)	440lb (200kg)
Readability	0.05lb (0.02kg)	0.5lb (0.2kg)	0.1lb (0.05kg)	0.5lb (0.2kg)	0.2lb (0.1kg)
Resolution	1:1750	1:300	1:1500	1:900	1:2000
Construction	Epoxy painted carbon steel, treaded surface				
Weighing Units	kg / lb / lb:oz				
Modes	Weighing, Dynamic weighing, Display hold				
Display	0.58" (15mm) 7-segment LCD, 51/2 digits				
Zero Range	±20% of full capacity				
Tare Range	Full capacity				
Stabilization Time	<3 seconds				
Operating Temp.	40° to 105°F (5° to 40°C)				
Humidity Range	<90% relative humidity, non-condensing				
Power	Alkaline Batteries: 4 x "AAA" size cells AC Adapter: 6Vdc/500mA, with central negative:  USB				
Interface	USB				
Max Overload	120% of capacity				
Indicator Dimensions	5.73 x 2.08 x 0.71" (L x W x H) 145.5 x 53 x 18mm (L x W x H)				
Base Dimensions	12" x 12" x 2.28" (L x W x H) 305 x 305 x 58mm (L x W x H)			12" x 12" x 2.52" (L x W x H) 305 x 305 x 64mm (L x W x H)	

Display



- **>0<** - Scale is zeroed and gross weight is zero.
- **Net** - Display reading is net weight; tare is not 0.
- **lb, kg, oz** - Unit of measure.
- **Hold** - Scale is in dynamic weighing mode.
  - **Hold** flashes - actual fluctuating weight displayed.
  - **Hold** does not flash - locked weight is displayed.

Function Keys

KEY	MODE		DEFINITION
PRINT/ HOLD	Weighing mode	<3 seconds	Sends output data via the USB port
		>3 seconds	Enters or exits HOLD mode
	Setup or Calibration mode		Shifts the flashing data entry position from right to left
UNIT	Weighing mode		Chooses weight unit of measure
	Setup/Calibration mode		Increases the digit in the flashing data entry position by 1
TARE	Weighing mode		Tares the weight
	Setup or Calibration mode		Confirms the input data and forwards to next step
ON/OFF/ ZERO	Weighing mode	<3 seconds	Zeros the platform weight
		>3 seconds	Powers off the scale
	Setup or Calibration mode		Exits to normal weighing mode
ON/OFF/ ZERO + UNIT	Weighing mode (more than 3 seconds)		Enter user parameter setup mode.
ON/OFF/ ZERO + TARE	Weighing mode (more than 3 seconds)		Enter calibration mode

Contents

- Indicator
- Cable from load cell to indicator
- AC120V/DC6V 500mA UL adaptor
- Scale platform
- 6' USB cable
- Owner's Manual

Calibration Mode

Note:

- **A standard calibration weight of at least 10% of the scale's rated capacity is required.**
- **The calibration operation must be in pounds.**
- **Press ZERO/ON/OFF at any time to exit calibration mode.**
- **Using 80% to 100% of the scale's rated capacity is recommended for optimum results.**

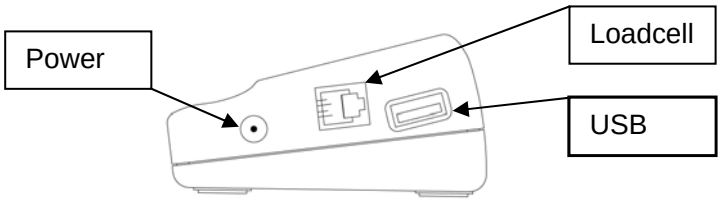
1. From normal weighing mode, press TARE and ZERO/ON/OFF until "**CAL-?**" is displayed.
2. Within calibration mode:
   - Press PRINT/HOLD to shift the flashing data entry position from right to left
   - Press UNIT to increase the digit in the flashing data entry position by 1
   - Press TARE to confirm and save the set data and enter next setting
   - Press ZERO/ON/OFF key to exit this mode
3. Press TARE to confirm and enter calibration mode.
4. "**CAL.P0**"will be displayed to calibrate scale's zero-point. Remove all weight from the scale platform and press TARE to confirm and move to the next step, or press ON/OFF to exit.
5. "**CAL.P1**" will be displayed and the scale will be ready to accept the next calibration point. The default calibration input weight will be 50% of the scale's rated capacity. Use the PRINT/HOLD and UNIT keys adjust to the standard calibration weight you will use. **Note: do not use less than 10% of the scale's rated capacity.** Place the standard calibration weight on the platform and press TARE to confirm your input and move to the next step. If "**CAL.Er**" is displayed, press ZERO/ON/OFF key to exit this mode and begin again.
6. "**CAL.P2**" will be displayed and the scale will be ready to accept the next calibration point. This step is optional, but better linearity will be achieved by calibrating to a second point. To skip this step, press the TARE key. Otherwise, the default calibration input weight will be 100% of the scale's rated capacity. Use the PRINT/HOLD and UNIT keys adjust to the standard calibration weight you will use. **Note: do not use less than 20% of the scale's rated capacity.** Place the standard calibration weight on the platform and press TARE to confirm your input and move to the next step. If "**CAL.Er**" is displayed, press ZERO/ON/OFF key to exit this mode and begin again.
7. "**CAL.P0**"will be displayed again. Remove all weight from the platform and press TARE to confirm and enter normal weighing mode.

User Parameter Setup Mode

1. From normal weighing mode, press UNIT and ZERO/ON/OFF until "USer" is displayed.
2. Within user parameter setup mode:
   - Press PRINT/HOLD to shift the flashing data entry position from right to left
   - Press UNIT to increase the digit in the flashing data entry position by 1
   - Press TARE to confirm and save the set data and enter next setting
   - Press ZERO/ON/OFF key to exit this mode

Parameter	Default	Setting
U1	05	Auto-off time: ▪ 0 = No auto-off function ▪ 01-15 = Scale will auto power off after 1-15 minutes with no activity
U2	2	Backlight on-off mode option: ▪ 0 = Backlight is always off ▪ 1 = Backlight is always on ▪ 2 = Backlight is auto-off after 10 seconds with no activity
U3	2	PRINT/HOLD key function set: ▪ 0 = Hold only ▪ 1 = Print only ▪ 2 = Hold and Print
U4	0	Hold function mode: ▪ 0 = No hold function ▪ 1 = Holds the largest weight reading ▪ 2-50 = Displays the stable weight within 3 seconds. Note: When weight exceeds 10d and the variation is within ±2d～±50d, the stable weight is displayed until less than 10d is detected on the platform. 1d = 1 division = 1 unit of readability as noted in Specifications
U5	1	Serial communication output format: ▪ 0= Communication is disabled ▪ 1 = Outputs stable weight, unit, and status when PRINT/HOLD is pressed, but does not receive data ▪ 2 = Output gross, tare, net weight, unit, and status when PRINT/HOLD is pressed, but does not receive data ▪ 3 = Continuously outputs displayed weight, unit, and status, but does not receive data ▪ 4 = Continuously outputs gross, tare, net weight, unit, and status, but does not receive data ▪ 5 = Outputs weight, unit, and status one time after scale is becomes stable ▪ 6 = Outputs gross, tare, net weight, unit, and status one time after scale becomes stable ▪ 7 = Two way communication mode
U6	3	Baud rate for Serial communication: ▪ 0 = 1200 ▪ 1 = 2400 ▪ 2 = 4800 ▪ 3 = 9600 ▪ 4 = 19200
U7	0	Serial communication byte format: ▪ 0 = 8N1 – 8 data bits, no parity, 1 stop bit ▪ 1 = 7O1 – 7 data bits, 1 bit odd parity, 1 stop bit ▪ 2 = 7E1 – 7 data bits, 1 bit even parity, 1 stop bit

Serial Communication



Before using the USB communication port, download the USB driver from http://www.measuretek.net/Download.html

Detailed Serial (USB) Output Information:

- U5=0: No serial communication. No data transmitted or received even if the scale is installed with serial communication hardware.
- U5=1: Pressing **PRINT/HOLD** will output the current stable weight, weight unit, and current status data in the following format, but will not receive data:

  <LF>< weight, minus, decimal point, weight unit><CR><LF> H1H2H3 <CR><ETX>
- U5=2: Pressing **PRINT/HOLD** will output the current stable gross weight, tare, net weight, weight unit and current status data in the following format, but will not receive data:

  <LF><Gross: reading, minus, decimal point, unit><CR>

  <LF> <Tare: reading, decimal point, unit><CR>

  <LF> <Net: reading, minus, decimal point, unit><CR>

  <LF> H1H2H3<CR><ETX>

  Bytes used:

  8 - Weight reading
  1 - Minus
  1 - Decimal point
  2 or 5 - Weight unit
  3 - Current status (H1.H2.H3)

- U5=3: Continuously outputs the current displayed reading, weight unit, and current status data, but will not receive data. The output format is the same as U5=1.
- U5=4: Continuously outputs the current gross weight, tare weight, net weight data, weight unit, and current status data, but will not receive data. The output format is the same as U5=2.
- U5=5: When the scale is stable, it will output the current displayed reading ,weight unit, and current status data automatically one time, but will not receive data. The output format is same as U5=1.
- U5=6: When the scale is stable, it will output the current gross weight, tare weight, net weight unit, and current status data automatically one time, but will not receive data. The output format is same as U5=2.
- U5=7: Two way communication. Responses to serial commands will be immediate, or within one

Serial Communication (continued)

weight measure cycle of the scale. One second is adequate for use as a time-out value by remote (controlling) device. After receiving an available command, the indicator will send out the corresponding messages:

- For normal operation, weight data will be 8 digits long; minus sign will be 1 digit; decimal point will be 1 digit; and unit of measure will be 2 digits if "lb" or "kg", and 5 digits if "lb:oz". Unit of measure abbreviations are always lower case.
- If the weight is over capacity, the scale will return ten '^' characters (the minus sign, decimal point, and weight data fields are filled by '^').
- If the weight is under capacity or if there is a zero point error, the scale will return ten '_' characters.
- The minus '-' character indicates negative weight, and a space ' ' character indicates positive weight. The minus sign follows after the first digit.
- Leading zero digits are suppressed.

Serial Communication Symbols

<LF>	Line Feed character (hex 0AH)
<CR>	Carriage Return character (hex 0DH)
<ETX>	End of Text character (hex 03)
<SP>	Space (hex 20H)
H1H2H3	Three status bytes (see below for byte definitions)
<p>	Polarity (minus sign for negative weight and space for positive weight)
W1-W8	Weight data
<dp>	Decimal point
U1U2	Measure units, "kg", "lb", or "lb oz"

Status Byte Definitions

Bit	Byte 1 (H1)	Byte 2 (H2)	Byte 3 (H3)
0	0=stable	0= not under capacity	01=normal work mode 10= hold work mode 00=not defined 11= not defined
	1= not stable	1= under capacity	
1	0= not at zero point	0= not over capacity	
	1= at zero point	1= over capacity	
2	0=not AD over	0=not zero over	0= gross weight
	1=AD over	1=zero over	1= net weight
3	0= eeprom OK	0=not zero down	0=not AD down
	1= eeprom error	1= zero down	1=AD down
4	always 1	always 1	always 1
5	always 1	always 1	always 1
6	always 0	always 1	always 0
7	parity	parity	parity

Serial Communication (continued)

Serial Commands and Responses

- Command: *S<CR> (53h 0dh)*
- Response: *<LF> H1H2H3<CR><ETX>*

- Command: *W<CR> (57h 0dh)*
- Responses:
  - over capacity: *<LF>^^^^^^^^^^u1u2<CR><LF>H1H2H3<CR><ETX>*
  - under capacity: *<LF>_____u1u2<CR><LF> H1H2H3<CR><ETX>*
  - zero-point error: *<LF>----------u1u2<CR><LF> H1H2H3<CR><ETX>*

  Note: If the weight unit is lb:oz, U1U2 = "lb oz" in above item ①②③.
  - Normal weight is displayed, current weight unit is kg or lb:
    <LF><p>w1w2w3w4w5w6<dp>w7w8u1u2<CR><LF>H1H2H3<CR><ETX>
  - Normal weight is displayed, current weight unit is lb:oz,
    <LF><p>w1w2w3w4w5w6lb<sp>w7w8<o><z><CR>H1H2H3<CR><ETX> or
    <LF><p>w1w2w3w4w5lb<sp> w6w7<dp>w8oz<CR>H1H2H3<CR><ETX>

- Command: *Z<CR> (5ah 0dh)*
- Response: *<LF> H1H2H3<CR><ETX>*

  Zero function is activated and returns to current scale status, like pressing ZERO/ON/OFF. If zero function cannot be activated, it will return to current scale status.

- Command: *T<CR> (54h 0dh)*
- Response: *<LF> H1H2H3<CR><ETX>*

  Tare function is activated and returns to current scale status, like pressing TARE. If tare function cannot be activated, it will return to current scale status.

- Command: *U<CR> (55h 0dh)*
- Response: *<LF>u1u2<CR><LF> H1H2H3<CR><ETX>*

  Changes unit of measure and returns to current scale status with new units, like pressing UNIT button.

- Command*: L<CR> (4ch 0dh)*
- Response: *<LF> H1H2H3<CR><ETX>*

  If hold function is enabled, goes to or exits from hold mode.

- Command: *X<CR> (58h 0dh)*
- Response: none

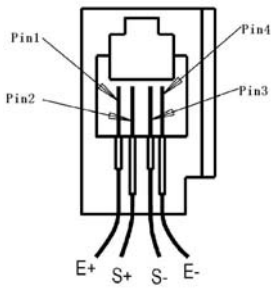
  Powers off the scale, like pressing ZERO/ON/OFF.

- Command: All others
- Response: *<LF>? <CR><ETX>*

  Unrecognized command.

Load Cell Wiring

PIN1	------	Excitation +
PIN2	------	Signal +
PIN3	------	Signal -
PIN4	------	Excitation –



Serial Communication (continued)

Meaning of Some Symbols:

0- - - -	Zero point is over the setting range
0_ _ _ _	Zero is below the setting range
Ad- - -	Analog digital converter chip over max. range
Ad_ _ _	Analog digital converter chip below min. range
- - - - -	Weight signal is too large
_ _ _ _	Weight signal is too small
EEP.E1	Config parameters incorrect (no set, no calibration, over normal range, etc.)
EEP.E2	User parameters incorrect
CAL-Px	Calibration point
CAL.Er	Error in calibration
CAP.--	The setting full capacity will be displayed
Cx.y	No. x configuration parameter is set to y
Ux.y	No. x user parameter is set to y
Lo.bAt	Battery voltage is below 3.6V

Replacement Parts

Part Number	Description
MH12R97601G	AC120V/DC6V 500mA UL adaptor

One Year Limited Warranty

MeasureTek products covered in this manual are guaranteed to be free from defects in material and workmanship for a period of one year after date of purchase. Misuse, accidental damage, overload, alteration, and improper installation are expressly excluded. Any product which is determined to be defective in material or workmanship within this time period may, as the exclusive remedy, be returned to an authorized MeasureTek distributor or service center, freight prepaid with prior return authorization, to be repaired or replaced at the manufacturer's option. MeasureTek's liability under this warranty is limited to the repair or replacement of the defective product and in no event shall MeasureTek be liable for consequential or indirect damages.